170311 N.
12/4/98

VERSAR, Inc.
Northeast Operations
1900 Frost Road, Suite 110
Bristol, Pennsylvania 19007
Tel: (215) 788-7844
Fax: (215) 788-8680

fax transmittal

To:	DISTRIBUTION
Fax #:	
From:	C. GAFFNEY
Date:	12-4-98
Re:	DATA COLLECTION PLAN
Pages:	11 + COVER

~~NOTES:~~ DISTRIBUTION: M. McATEER
R. BALL
N. BERNSTEIN
A. HUTCHENS
M. DOWIAK
T. HARRISON
T. WALKER

Versar INC.

Via Facsimile

4 December '98

Michael McAteer
USEPA, HSRW-6J
77 West Jackson Blvd.
Chicago, IL 60604-3590

Re: Enviro-Chem RRA
Data Collection Plan for
Operations Shakedown Period

Dear Mr. McAteer:

As we discussed during our project conference call today, I am transmitting to you a copy of the Versar/Handex Data Collection Plan that is being used during the current Operations Shakedown Period. The four week Shakedown Period is scheduled to end on the 24th of December with the Operational Sampling Period to commence thereafter. For convenience purposes only to assure that no mix up occurs during the 25 December to 3 January holiday period, Versar proposes to begin the Sampling Period on Monday, 4 January 1999.

Very Truly Yours,

Charles J. Gaffney

cc: R. Ball (ENVIRON)
N. Bernstein (NEB & A)
R. Hutchens (ENVIRON)
M. Dowiak (Radian)
T. Harrison (CH2MHill)
G. Anastos (Versar)
T. Walker (Versar)

OPERATIONS SHAKEDOWN PERIOD DATA COLLECTION PLAN

for

Envirochem Superfund Project
Zionsville, Indiana

Spec Section 13200.1.04.D

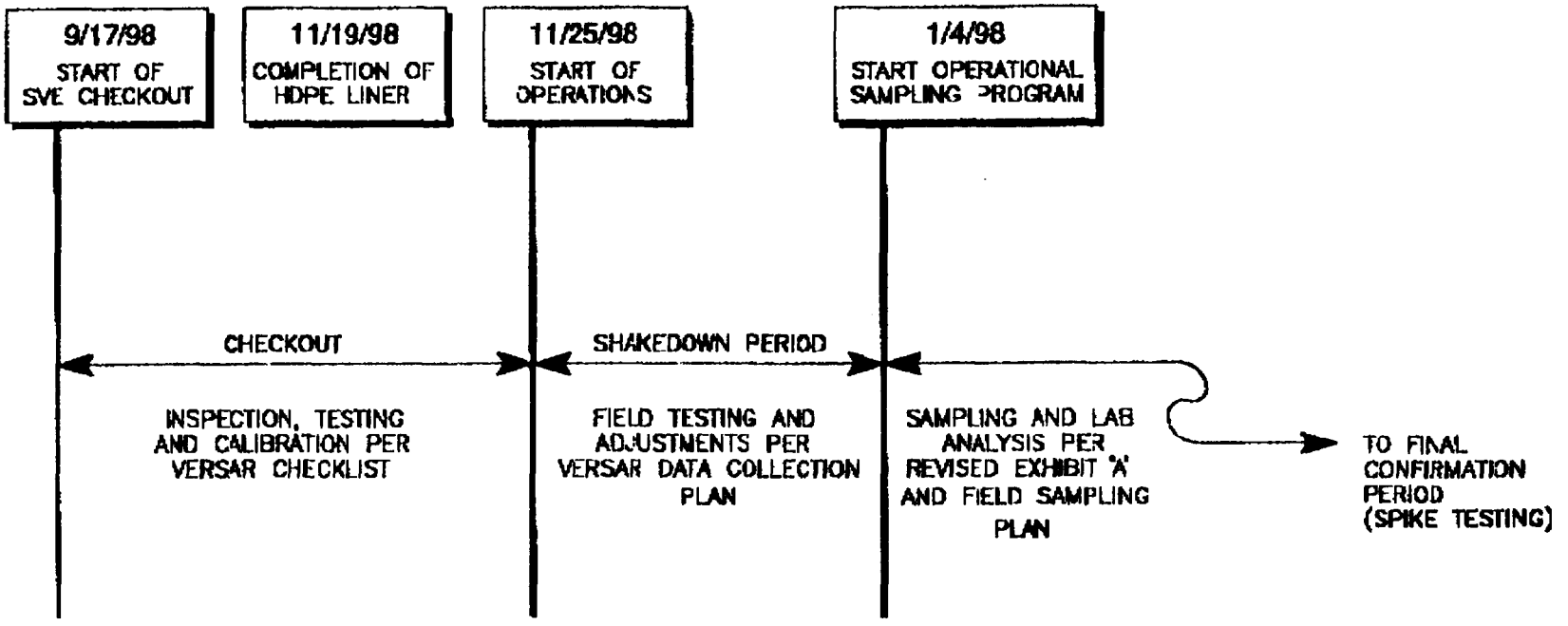
Prepared for:

Versar, Inc.
1900 Frost Road
Bristol, Pennsylvania

Prepared by:

Handex Environmental
4231 Zionsville Road
Indianapolis, Indiana

TIME LINE DIAGRAM



Versar Inc.
1900 FROST ROAD, SUITE 110
BRISTOL, PA 19007
(215) 788-7844

DECEMBER 3, 1998

C:\MA\ENVIRO\OCT13\SCHEDULE.DWG

1.0 Introduction

The project specifications require submittal of an "Operations Shakedown Data Collection Plan". The enclosed plan and proposed data collection sheets have been prepared by Handex to meet the requirements of the referenced specification.

The plan is broken into sections, however data will be collected, generated and evaluated as a "whole" from the site. Section 2.0 defines the monitoring points and monitoring equipment for the operation of the SVE system. Section 3.0 defines the monitoring points and monitoring equipment for the operation of the water collection and treatment system. Section 4.0 defines a typical site database, where routine information will be recorded based on the Site OPERATOR's monitoring sheets. Included in Appendix A are copies of the proposed 4 page monitoring sheets which will be completed by the Site OPERATOR whenever onsite. Appendix B includes the proposed data monitoring spreadsheets, which will be completed at the end of every site inspection.

2.0 Water System Data Monitoring

Sheet number one (1) of four (4) in Appendix A includes documentation of the general overview of the site and information regarding the water treatment system. The site OPERATOR will record the itemized information during each site visit. Individual data points will be compared with the system design parameters as well as previous operational data.

Each of the data points will be obtained from the "direct read" instrumentation installed with the system. The OPERATOR will simply record each item from a visual observation.

3.0 SVE Data Monitoring

During the Shakedown Period adjustments will be made to SVE influent manifolds to optimize operations and performance. Individual manifolds may be adjusted to vary airflow and pressure, from vacuum to positive pressure by air inspection.

The OPERATOR to monitor the operation of the SVE and dewatering systems will use inspection sheet numbers 2, 3 and 4. The SVE system will run continually, therefore additional data points will be monitored from the SVE system to track the progress.

Sheet number 2 include information from each of the SVE extraction trenches. The influent manifold has been piped to allow the OPERATOR to monitor extraction and performance from each trench. Sheet 2 includes information on contaminant load, oxygen content, airflow rate and induced vacuum on each of the trenches. The following sections define the instruments that will be used by the OPERATOR to obtain the SVE data:

FID w/ GAC = The OPERATOR will use a portable flame ionization detector (FID) to monitor hydrocarbons within the extracted soil vapor from each trench. The OPERATOR will first evaluate oxygen content and approximate background methane levels with the FID using a specially fitted monitoring tip. With the GAC tip, granular activated carbon is used to filter out all volatile organic but methane. The designation "FID w/ GAC" defines the methane content of the extracted soil vapor in parts per million.

FID Total = The OPERATOR will continue using the FID unit, however the GAC tip will be removed and replaced with a monitoring tip with only particle filtration. The "FID Total" reading defines the total organic within the extracted soil vapor in parts per million, including methane.

FID-NonMethane = This column is a direct subtraction of "FID Total" minus "FID w/ GAC" to yield the non-methane hydrocarbons within the soil gas in parts per million. As an example, if the FID Total reading is 2,650 ppm and the FID w/GAC reading is 365 ppm, the extracted non-methane hydrocarbons are 2,285 ppm.

LEL = Lower Explosive Limit is an interpretive measure of extracted hydrocarbons. The OPERATOR will use a direct reading gas monitor, which uses a precious metal catalyst to extrapolate explosive vapor levels within the air. The majority of targeted chlorinated hydrocarbons do not present an explosive hazard, however this parameter will be used to evaluate the potential to create a harmful environment within the treatment building.

O2 = Oxygen content in percent by weight will be measured with a direct reading instrument. The oxygen content will be used to evaluate potential biologic activity and the amount of fresh air infiltration into the subsurface.

Kurz = Kurz is a brand name air velocity instrument. The instrument provides a direct reading of airflow velocity in feet per minute past the instrument tip.

Air Flow = Air volume flow rate can be calculated based on the air velocity readings of the Kurz meter and the known cross sectional area of the 3-inch extraction pipes. As an example, if the Kurz reading is 1,375 feet per minute in the 3-inch pipe; volumetric airflow rate is

1,375 fpm x 0.0491 sf = 67.5 cubic feet per minute

Vacuum = The vacuum level on the extraction trenches will be direct measured by vacuum gauges. The extraction airflow rate and associated vacuum rate can be adjusted from each trench by the individual ball valves on each extraction leg.

Sheet number 3 include information regarding the vacuum pumps, air discharge from the vacuum pumps and air treatment. The majority of the information is from direct reading instrumentation installed within the system. The same field instruments defined above will be used to monitor gas concentrations through the GAC treatment system.

Sheet number 4 include information on the air compressor and pneumatic dewatering system. All information on this sheet is from direct read field instruments.

4.0 Monitoring Databases

Appendix B includes blank examples of the proposed technician information databases. Database number 1 defines water recovery, water contaminant sampling, vapor recovery and vapor sampling information from the systems. Photocopies of the site inspection sheets will be maintained at the site within pocket pendaflex folders. One pocket will be dedicated to each tech sheets, one through four, and monthly basis historical printouts of the monitoring databases will be filed at the site.

Database number 2 is a tabular listing of non-methane influent concentrations from each extraction trench. Included within the top line of both databases is the date of the technician visit. The common date stamp will allow the OPERATOR to create concentration over time graphs for each of the parameters. These graphs can be used to prepare trend analysis of the recovery rates from each trench. The OPERATOR and Versar to evaluate the best time to conduct the "re-start" spike samplings as defined by the consent decree will use this information.

WATER SYSTEM TECH INSPECTIONS

ENVIROCHEM SUPERFUND PROJECT

Handex Job No. 115082 **Tech Sheet No.** _____

Technician Name _____ **Date & Time Onsite** _____

General Site Conditions and Inspection Notes:

Gate Locked on Arrival & Departure	Y - N	Weather Conditions	_____
SVE System Running on Arrival	Y - N	Ambient Temperature	_____
SVE System Running on Departure	Y - N	Maintenance Performed	_____
Compliance Samples Obtained	Y - N		_____
Adjustments Made Before Starting	Y - N		

Storage Tank Data - Record Both Arrival and Departure

T-2 Tank Status -Arrival	High-High	High 2	High 1	Low
T-4 Tank Status - Arrival	High-High	High	Low	Low-Low
T-2 Tank Status -Departure	High-High	High 2	High 1	Low
T-4 Tank Status - Departure	High-High	High	Low	Low-Low

Operational Data

Primary Influent Pump	P100 A or B	Primary GAC Pump	P-1A or P-1B
Air Stripper Influent Flow Rate	_____ gpm	Air Stripper Total Flow on Departure	_____ gal
GAC Effluent Flow Rate	_____ gpm	GAC Effluent Total Flow on Departure	_____ gal
Effluent Discharge Flow Rate	_____ gpm	Effluent Discharge Total Flow on Departure	_____ gal

Influent TSS Filters

Filter 1 Pressure	_____ psi	Filter 2 Pressure	_____ psi
Filter 1 sock size	_____ microns	Filter 2 sock size	_____ microns
Filter 1 Sock Changed	Y or N	Filter 2 Sock Changed	Yes or No

Air Stripping System

Blower Air Pressure	_____ IWC	Blower Air Flow Rate	_____ scfm
Influent Water Pressure	_____ psi	Stripper Sump Level	_____ inches

GAC Influent TSS Filters

Filter 3 Pressure	_____ psi	Filter 4 Pressure	_____ psi
Filter 3 sock size	_____ microns	Filter 4 sock size	_____ microns
Filter 3 Sock Changed	Y or N	Filter 4 Sock Changed	Yes or No

Liquid GAC Units

GAC #1 Influent Pressure	_____ psi	GAC's Backwashed	Yes or No
GAC #2 Influent Pressure	_____ psi	Pressure Reliefs OK	Yes or No
GAC #2 Effluent Pressure	_____ psi	T-4 Return Pressure	_____ psi

Effluent & Recirculation Pumps

P-200 Effffluent Pressure	_____ psi	Floor Sump OK	Yes or No
P 300 Recirc Pressure	_____ psi	Building HVAC OK	Yes or No
Backwash Pressure	_____ psi	Effluent to Truck Load OK	Yes or No

Comments _____

SVE SYSTEM TECH INSPECTIONS

ENVIROCHEM SUPERFUND PROJECT

Handex Job No. 115082- Tech Sheet No.

Technician Name Date & Time Onsite

SOIL VAPOR EXTRACTION VAPOR DATA

SVE Trench	FID w/GAC	FID Total	FID - Non Methane	LEL	O2	Kurz	Air Flow	Vacuum	Other
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									

SVE SYSTEM TECH INSPECTIONS

ENVIROCHEM SUPERFUND PROJECT

Handex Job No. 115082- Tech Sheet No.

Technician Name Date & Time Onsite

VACUUM PUMPS No. 1 INFLUENT

VP-1 Influent Vacuum	" of Hg	Lubricating Oil OK	
Particle Filter Delta P	IWC	Drive Belt & Cover	
Discharge Air Temp	deg F	Fresh Air Valve Setting	
Kurz Meter Total Air Velocity	fpm		

VACUUM PUMPS No. 2 INFLUENT

VP-2 Influent Vacuum	" of Hg	Lubricating Oil OK	
Particle Filter Delta P	IWC	Drive Belt & Cover	
Discharge Air Temp	deg F	Fresh Air Valve Setting	
Kurz Meter Total Air Velocity	fpm		

Knock-Out Pot No. 1

Combined Influent Vacuum	" of Hg	Water Level- Site Glass OK	Yes or No
Combined Influent FID	ppm	Air Operated Valve OK	Yes or No
Combined FID w/ GAC	ppm	P-1 Flow Meter	gals

Heat Exchanger HX-1

Influent Air Temp	deg F	P-7 Flow Rate	gpm
Effluent Air Temp	deg F	P-7 Flow Meter	gals
Visible Inspection		P-7 Influent Water Temp	deg F

Knock-Out Pot No. 2

Combined Effluent Pressure	" of Hg	Water Level- Site Glass OK	Yes or No
Combined Effluent FID	ppm	Manual Drain K-2 Tank	Yes or No
Combined FID w/ GAC	ppm	Comment	gals

Vapor GAC #1

SVE Influent Temp	deg F	SVE Air Flow (panel)	scfm
Combined Influent Temp	deg F	Total Air Flow (Panel)	sctm
GAC #1 Effluent Temp	deg F		
Combined Inf FID	ppm	Combined Effluent FID	ppm
Influent FID w/ GAC	ppm	Effluent FID w/ GAC	ppm
Influent O2 & LEL	% & %	Effluent O2 & LEL	% & %

Vapor GAC #2

GAC #2 Effluent Temp	deg F	Combined Effluent FID	ppm
Effluent O2 & LEL	% & %	Effluent FID w/ GAC	ppm

Vapor Analyzer FID Unit

Point #1 Combined Influent	ppm	Point #2 GAC 1 Effluent	ppm
Point #3 Final Effluent	ppm	Point #4	ppm
H2 Pressure in Tank	psi	System Calibrated	Yes or No
Combined Inf FID	ppm	Combined Effluent FID	ppm
Influent FID w/ GAC	ppm	Effluent FID w/ GAC	ppm
Influent O2 & LEL	% & %	Effluent O2 & LEL	% & %

DATE _____

SITE AND GENERAL INSPECTION

ENVIROCHEM SUPERFUND PROJECT

Handex Job No. 115082 Tech Sheet No.

Technician Name Date & Time Onsite

Air Compressor Unit

Unloader Air Pressure	psi	Lubricating Oil Level	
Particle Filter OK	Yes or No	Drive Belt & Cover	

Dewatering DDP No. 1

Air Pressure	psi	Vacuum Switch Setting	" Hg
Line #1 Vacuum	" Hg	Line #2 Vacuum	"Hg
Line #3 Vacuum	" Hg	Line #4 Vacuum	" Hg

Dewatering DDP No. 2

Air Pressure	psi	Vacuum Switch Setting	" Hg
Line #5 Vacuum	" Hg	Line #6 Vacuum	"Hg
Line #7 Vacuum	" Hg		" Hg

Dewatering DDP No. 3

Air Pressure	psi	Vacuum Switch Setting	" Hg
Line # Vacuum	" Hg	Line # Vacuum	"Hg
Line # Vacuum	" Hg	Line # Vacuum	" Hg

Dewatering DDP No. 4

Air Pressure	psi	Vacuum Switch Setting	" Hg
Line # Vacuum	" Hg	Line # Vacuum	"Hg
Line # Vacuum	" Hg	Line # Vacuum	" Hg

Dewatering DDP No. 5

Air Pressure	psi	Vacuum Switch Setting	" Hg
Line # Vacuum	" Hg	Line # Vacuum	"Hg
Line # Vacuum	" Hg	Line # Vacuum	" Hg

Dewatering DDP No. 6

Air Pressure	psi	Vacuum Switch Setting	" Hg
Line # Vacuum	" Hg	Line # Vacuum	"Hg
Line # Vacuum	" Hg	Line # Vacuum	" Hg

Field Inpsection Tank #2

BL-400 Pressure	psi	Vapor GAC Flow Velocity	fpm
GAC #1 Influent Pressure	psi	Tank Condition OK	Yes or No
GAC #2 Influent Pressure	psi	Leak Containment Sump	Yes or No

Field Inpsection Tank #4

Tank Condition OK	Yes or No	Leak Containment Sump	Yes or No

DATE _____

ENVIROCHEM SUPERFUND PROJECT
HISTORICAL TREATMENT SYSTEM LOG

Tech Date									
Operational Day									
Water Flow Meters									
Air Stripper Influent									
GAC Effluent									
Final Effluent									
P-1 (K-1) Flow									
P-2 (S-1) Flow									
P-7 Flow									
DDP 1 & 2									
DDP 3 & 4									
DDP 5 & 6									
Air Flow Readings									
SVE Air Flow									
Total Air Flow									
FID Readings									
Vapor GAC Influent									
GAC #1 Effluent									
Final GAC Effluent									
Vapor Analyzer Readings									
Vapor GAC Influent									
GAC #1 Effluent									
Final GAC Effluent									
Laboratory Results									
Total Liquid VOC's from Lab									
Calculated Values									
Est Vapor Pounds Removed (VA-1)									
Est Vapor Pounds Removed (Field)									
Est Liquid Pounds Removed									

12/4/98

ENVIROCHEM SUPERFUND PROJECT
HISTORICAL VAPOR SYSTEM INFLUENT LOG

Tech Date							
Operational Day							
Influent Leg #1							
Influent Leg #2							
Influent Leg #3							
Influent Leg #4							
Influent Leg #5							
Influent Leg #6							
Influent Leg #7							
Influent Leg #8							
Influent Leg #9							
Influent Leg #10							
Influent Leg #11							
Influent Leg #12							
Influent Leg #13							
Influent Leg #14							
Influent Leg #15							
Influent Leg #16							
Influent Leg #17							
Influent Leg #18							
Influent Leg #19							
Influent Leg #20							
Influent Leg #21							
Influent Leg #22							
Influent Leg #23							
Influent Leg #24							
Influent Leg #25							
Influent Leg #26							
Influent Leg #27							
Influent Leg #28							
Influent Leg #29							
Influent Leg #30							
Influent Leg #31							
Influent Leg #32							
Influent Leg #33							
Influent Leg #34							
Influent Leg #35							
Influent Leg #36							
Influent Leg #37							
Influent Leg #38							
Influent Leg #39							
Influent Leg #40							
Influent Leg #41							
Influent Leg #42							